

Kurt Reiser

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Desired

Continue developing expertise in information fusion and/or image processing. Innovative applications of fusion include intelligent text filtering, automatic construction of fused classifiers, expert systems, and financial analysis. Extensive experience in automated learning and inspection can be applied to quality control, surveillance or target recognition.

Education

Ph.D. (Computer Science), University of Southern California, 1991;
 M.S. (Computer Science), University of Southern California, 1987;
 B.S. (Computer Science), University of Illinois at Urbana, 1984.

Skills

Problem Solving, Technical Development, Proposal Preparation, Marketing

Experience

MultiSensor Data Fusion (1993-1999): managing projects developing multisensor fusion architectures for ballistic missile defense and ATR. *Invented supervised and unsupervised learning techniques to train evidential reasoning systems.*

3D Object Recognition (1989-1995): designed and implemented systems that learn to recognize 3D objects from multiple views. Applications include Automatic Target Recognition.

Road Condition Sensing (1992): managed project; participated in experimental design; collected, processed, and analyzed data during development of a microwave-based road condition sensor. Ongoing applications include aircraft wing ice sensing.

Character Recognition (1991-1992): constructed attributed graph-based and vector quantizer systems capable of 97% recognition rates. Results are being incorporated into a contract-supported hybrid system.

Inspection Systems (1988-1991): developed and patented a surface reconstruction system for inspection of surface-mounted solder joints. 2D and 3D processing included edge detection and grouping, shape from shading, and surface characterization.

Range Image Analysis (1987-1988): participated in development of range image processing techniques that, in part, lead to the world's first map and sensor-based cross country traversal by a robotic vehicle.

Honors

First Recipient of the *HRL Outstanding Initiative Award*, 1989.
 Holder of first patent issued to the Hughes Artificial Intelligence Center.
 Hughes Doctoral Fellow, 1988; Hughes Master's Fellow, 1986.

Publications

13 papers and patents in the areas of machine perception, signal processing and artificial intelligence. More in preparation.

Clearance s

Secret, SCI

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Patents

"Surface Condition Sensing System", K. Reiser, S. Harmon, and J. Butler, U.S. Patent 5,497,100: March 5, 1996.

"Matching Technique for Context Sensitive Rule Application", C. Dolan, D. Keirseay and K. Reiser, U.S. Patent 5,317,677: May 31, 1994.

"Method and Apparatus for Inspection of Solder Joints Utilizing Shape Determination from Shading", K. Reiser, U.S. patent 5,064,291: Nov. 12, 1991.

Dissertation

Reiser, K. "Learning Persistent Structure", University of Southern California Department of Computer Science. August, 1991.

Invited Papers

von der Malsburg, C. and K. Reiser, "Pose Invariant Object Recognition in a Neural System," Proceedings of the International Joint Conference on Neural Networks, Paris, October, 1995.

Daily, M., J. Harris, and K. Reiser, "An Operational Perception System for Cross-Country Navigation," Proceedings of the Image Understanding Workshop, Boston, MA, April, 1988.

Olin, K.E., M.J. Daily, J.G. Harris, and K. Reiser, "Knowledge-Based Vision Technology Progress at Hughes AI Center", Proceedings of the Image Understanding Workshop, Boston, MA, April, 1988.

Olin, K.E., F.M. Vilnrotter, M.J. Daily, and K. Reiser, "Developments in Knowledge-based Vision for Obstacle Detection and Avoidance", Proceedings of the DARPA Image Understanding Workshop, L.A., California, 1987.

Daily, M.J., J.G. Harris, and K. Reiser, "Detecting Obstacles in Range Imagery", Proceedings of the DARPA Image Understanding Workshop, L.A., California, 1987.

Papers

Reiser, K. and Y. Chen, "Supervised and Unsupervised Learning in Dempster-Shafer Systems", Submitted to the Journal of Approximate Reasoning, 1995.

Reiser, K. "Vector Quantization for Recognition of Hand Written Numerals", 27th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, California, 1993.

Daily, M., J. Harris, and K. Reiser, "An Operational Perception System for Cross-Country Navigation", IEEE Conference on Computer Vision and Pattern Recognition, Ann Arbor, Michigan, 1988.

Daily, M., J. Harris, D. Keirseay, K. Olin, D. Payton, K. Reiser, J. Rosenblatt, D. Tseng, and V. Wong, "Autonomous Cross-Country Navigation with the ALV", Proceedings of the IEEE International Conference on Robotics and Automation, Philadelphia, Pennsylvania, 1988; also in Proceedings of the DARPA Knowledge-Based Planning Workshop, Austin, Texas, 1987.